1973

Attitudes Toward the College Deaf Student: Stereotype or "Kernel of Truth"?

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ATTITUDES TOWARDS THE COLLEGE DEAF STUDENT: STEREOTYPE OR "KERNEL OF TRUTH"?

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Presented at the Eastern Psychological Association 44th Annual Convention, 1973

The research reported in this paper was supported in part by funds supplied by National Scienfe Foundation Institutional Grant #GU3570-A-1 to the Rochester Institute of Technology, and with materials and analysis assistance furnished by the National Technical Institute for the Deaf.

ACKNOWLEDGMENT

Thanks are due for data collection to Jerry Nelson (NTID student) and to Stephen Kramer (RIT College of Business hearing student).

INTRODUCTION

The National Technical Institute for the Deaf (NTID) was founded at the Rochester Institute of Technology (RIT) four years ago. Its purpose was to offer postsecondary level technological training for the deaf within a hearing millieu, while offering special aids and assistance in terms of counseling and support services to the deaf.

The introduction of a minority group of deaf students into the majority hearing culture (approximately 410 NTID students and 5000 full-time RIT students, as of 1972) offered an intense microcosm of the situation when any minority exists within a majority group. The deaf students in general are readily identifiable as a group since they of course do not hear well enough to participate easily in a conversation with an ordinary hearing student. In addition to this obvious attribute, however, there are others; i.e., a major mode of communication among themselves is by manual signing involving much movement of the hands, facial gestures that often seem inappropriately broad in nature to the hearing, sounds that are louder

and more gutteral than those normally used by the hearing, and others distinguishing characteristics.

These items appear to have led to a process of stigmatization of the deaf by the hearing students, accompanied by the formation of a set of beliefs or stereotype about the "deaf personality". While many of the hearing students both sympathize and actively help the deaf, there still appears to be an undercurrent of hostility toward deaf students evinced by the hearing in conversation about the deaf and NTID in general .

A stereotype simply means a collection of beliefs about a distinguishable group of people. Harding, Proshansky, Kutner, and Chein (1969) state that "We have not been able to find any instance in these studies [of ethnic stereotypes] of a serious attempt to determine the actual basis of the judgments recorded or the extent to which they involved a failure of rationality" (p. 8). They continue by pointing out that there have been few tests of the "kernel of truth" hypothesis: "Klineberg's (1950) assertion that if we could determine objectively and accurately the characteristics of a defined social group, and if we ascertained the beliefs of some other social group about the first, we would find a more than random correspondence between the two sets of characteristics" (Harding, et al, pg. 8).

The present investigation then seeks to establish if any stereotype does exist among the hearing about the personality of the deaf, and, if there is such a set of beliefs, whether there exists a basis in fact for these perceived characteristics. Specifically, four hypotheses were to be tested, two major and two minor ones. The major ones were:

Hypothesis 1: A stereotype of personality characteristics of the deaf student has been formed on the RIT campus.

Hypothesis 2: This stereotype will show some correspondence with objective measures of the personality structure of the deaf.

In addition to these two major hypotheses, two minor ones were also tested. These have to do with the behavior of the deaf vis-a-vis their peers and the hearing faculty. Several observers have noted that the deaf appear to be more conformist than hearing students; that they are more group-oriented and group-dependent, that they enjoy less working on independent projects than the hearing, etc. To test these observations, a third hypotheses was formulated.

Hypothesis 3: The deaf are more group-oriented and conforming than the hearing.

And lastly, hearing faculty among themselves often seem to believe that the deaf are adept at using their disability to obtain higher grades than they would be entitled to on objective evidence alone, or that they use their disability as an excuse to not complete assignments adequately. The operative word here is using their disability; in other words, manipulating hearing people to do things they wish, or to extend to them more leeway than they are entitled to. An effort was made to test this vague feeling in terms of the following hypothesis:

Hypothesis 4: The deaf are more socially manipulative than the hearing.

METHOD AND PROCEDURE

A. Subjects

The subjects were 25 randomly chosen deaf students (18 males and 7 females), and 25 randomly chosen hearing students (17 males and 8 females), on the RIT campus. The average age of the deaf students was 21.6, and the average age of the hearing was 21.8, None of the students had previously been tested on any of the instruments used in this study.

B. Test Administrators

The test administrators were two students, one deaf and one hearing, each of whom tested only members of his own group.

The testing was done on a "double-blind" basis, since neither the testors nor the subjects knew the meaning of the scales used nor the direction of the results expected.

C. Instruments

Five questionnaires were utilized in the total test package: a measure of perception of group characteristics (stereotyping), a measure of personality, one of conformity, and two of a manipulative approach to interpersonal activities.

1. Stereotyping

In order to arrive at what beliefs each group holds of itself and of the other group, the Gough Adjective Check List (ACL) of 300 adjectives was utilized. These adjectives were listed in alphabetical order on two sheets of paper, with a line in front of each where a subject might place a check. The following cover sheet directions were attached:

Directions: These pages contain a list of adjectives. Please read them quickly, putting a check mark next to each word that you would use to describe the (deaf) (hearing) people in general. There may be a few exceptions, but do not consider them as part of your description of the (deaf) (hearing). Try to be frank, and check those adjectives which describe them as you really think they are.

Each of the 25 NTID and 25 RIT students filled out the check list, first for the opposite group (i.e., the deaf group first checked adjectives targeted on the hearing), and then for his own group. There were thus four cells, with each group being both an evaluating group and a targeted group for their own group and for the other.

The frequency with which each adjective was checked in each of the cells was used to operationally determine the level of belief held by the evaluating group for that characteristic residing in the targeted group. Therefore, the greater the frequency of checking of a specific adjective, the greater was that adjective considered as a part of the group stereotype.

2. Personality measure

The 16 Primary Factor Personality Questionnaire (16 P.F. Questionnaire) Form E was the measure chosen to assess the personality of all the subjects (Cattell, Eber and Tatsuoka, 1970). This personality questionnaire was chosen based on the following rationale. Most of the deaf students have a relatively low level of vocabulary, especially with regard to idiomatic expressions and questions involving words of great length or complexity. Few personality tests provide special norms for adults of low literacy level; Form E of the 16 PF is one. It is specifically designed for "very simple vocabulary -- low literacy groups ... educationally disadvantaged groups" (Ibid, p. 3-4). Form E was created to parallel the higher vocabulary level Forms A and B of the 16 PF. Since it was designed to obtain a measure of the personality of the deaf and the hearing as little contaminated as

possible by this difficulty in verbal comprehension, both groups were tested on Form E. It was recognized that the use of this low-literacy form might cause some loss of precision in measuring the personality of the hearing, but the apparent advantage that results was felt to offset this cost.

The rationale for the design of the 16 PF may be found in greater detail in Cattell's Handbook for the 16 PF Questionnaire (1970) referenced above. In general, the test was designed on the basis of "a series of interlocking researches over twenty-five years, directed to locating unitary, independent, and pragmatically important 'source traits' ... (which are) factors (rotated to oblique simple structure) affecting large areas of the overt personality behavior" (p. 7). It is designed for use primarily with normal individuals in situations where they are anticipated to be relatively cooperative.

3. Conformity: The Crowne-Marlowe Scale of Social Desirability was used to obtain a measure of the level of conformity to general cultural ideals by the groups (Marlowe and Crowne, 1961). This test has often been used as a measure of a need for social approval by means of social conformity (Marlowe and Gergen, 1970, pp. 599-600), and is generally simple to read and understand. As the 16 PF also yields a personality factor of "group dependence", it was felt that the Crowne-Marlowe score would enable a valuable check on the 16 PF results; disagreement between the two scales might indicate that something was not being accurately measured.

4. Social Manipulation: The final tests in the battery were Forms IV and V of the Machiavellianism Scale (Christie and Geis, 1970). Form IV is a Likert-type scale based upon statements derived from Machiavelli, running from strong disagreement to strong agreement in five steps, while Form V is a three-choice forced choice scale, balanced for social desirability. Christie and Geis suggest that both scales be administered to obtain greater accuracy in categorization of the subjects as to their agreement with statements that represent a socially manipulative viewpoint.

METHOD AND PROCEDURE

The examiners solicited each of the subjects individually, and requested them to fill out the 16 PF Questionnaire. Since this questionnaire contains 128 questions and requires approximately 30-

40 minutes to complete, no other of the tests were administered at this first testing session.

The subjects were subsequently recontacted a week later, and requested to fill out the ACL, targeted first for the opposite group and then for his own group. Immediately afterwards, he was asked to answer the Crowne-Marlowe scale (these two tests also required approximately 30-40 minutes).

Lastly, the subjects were again recontacted two days later, and requested to fill out the Mach IV and V scales.

Each examiner tested only subjects of his own group (deaf or hearing), in an effort to reduce "evaluation apprehension" effects which might otherwise be expected to enter heavily in the ACL scores (Rosenberg, 1965). Both hearing and deaf subjects exhibited increasing reluctance to give time with each renewed testing session, but there did not appear to be greater reluctance on the part of either group. The results obtained on the various measures appear in the next session.

RESULTS

A. Adjective Check List

Analysis of the ACL was made by listing the adjectives in order of the relative frequency of attribution to each of the target groups by each of the evaluative groups. A cut-off point of the highest 5% of these listings was made for ease of handling. The results of this frequency analysis are shown in Table 1. (In those cases where obtaininga precise 15 adjectives (5% of 300) would have required choosing one more or one less from among a large list of additional adjectives in the next lower frequency grouping, slightly more or less than 15 are listed.)

(Insert Table 1 about here)

Table 2 recorders these adjectives in terms of an apparent similarity in factors among these highest frequency adjectives.

(Insert Table 2 about here)

In this way, clusters of adjectives emerge from the frequency listings as follows:

1. Deaf targeted on the deaf:

a. Argumentative, complaining, and stubborn all have the frequency of 72% (highest recorded frequency in this group). Similar in characteristic to these are show-off (60%), faultfinding (568), demanding (52%), and perhaps active (54%) and talkative (52%). This characteristic may be summarized therefore as Argumentative.

b. A second cluster would seem to be sensitive (60%), emotional 56%, worrying 56%, and moody (52%). A cluster name for this might be Emotional.

c. The third cluster might be composed of confused (72%), and careless (60%). This cluster can be called Immature. Omitted from these clusterings are the adjectives humorous (52%) and dependable (52%) which do not fall into any apparent cluster.

2. Hearing targeted on the deaf:

Again several clusters seem to emerge from Table 2.

a. The highest frequency adjective chosen is emotional (60%), with defensive (52%), changeable (48%),excitable (44%), moody (44%), and high-strung (44%) all sharing the characteristic. It might be summarized as Emotional.

b. A second clustering appears to be aggressive (52%), headstrong (52%), impatient (48%), and obnoxious (44%). A cluster name might be Aggressive.

c. A third cluster appears to be noisy 48%, awkward (44%), immature (44%), and self-centered (44%). This cluster may be called Immature. Omitted from these clusterings is the adjective friendly (44%), which does not seem to join any cluster. The actual adjective immature for this group was in the frequency category just below the top 5%, with a frequency of 48% for the deaf on deaf group.

3. Deaf targeted on hearing

Again three clusterings can be grouped from the data in Table 2.

a. Friendly 76% is the highest frequency, and is allied with cooperative (72%), kind (72%), cheerful (60%), and helpful (60%). This clustering can be called Friendly .

b. A second cluster is curious (68%), intelligent (60%) clever (60%), and clear-thinking (60%), with perhaps talkative (72%) and active (64%) in this grouping. The name chosen to represent this cluster is Intelligent.

c. A third clustering is self-confident (68%), and mature (60%). A group name might be Mature. Omitted from these clusterings is argumentative (60%).

4. Hearing targeted on the hearing No definite clusterings are revealed in this data. Many apparently contradictory adjectives have high frequencies, such as sociab he (56%) along with shy (56%), sophisticated (72%) and foolish (64%), ambitious (56%) and easy going (52%). This point will be explored further in the discussion section.

In summary, then, the data from the ACL might be gathered into the following clusters:

Deaf targeted on deaf: Argumentative, emotional, and immature. Hearing targeted on deaf: Aggressive, emotional and immature. Deaf targeted on hearing: Friendly, intelligent, and mature. Hearing targeted on hearing: So definite clusterings.

B. The 16 Primary Factors Questionnaire Form E The mean profiles of both the hearing and the deaf students on the 16 PF questionnaire are shown in Figure 1. As may be seen, the profiles in general correspond fairly closely for both the deaf and the hearing students.

(Insert Figure 1 about here)

Table 3 lists the mean sten score for the hearing and the deaf, along with the differences in the mean sten scores between the groups. Table 4 is an abstract from Table 3, listing only those factors where a significant difference at the .05 level or better, ranked in order of the level of significance of the differences was found between the two groups. As may be seen, these are scales Q2, C, F. A, Q3, and G.

(Insert Tables 3 & 4 about here)

A supplemental analysis of interest are those scales with significant differences where the mean group sten scores fall on different sides of the mean sten score of the Form E distribution (5.5); i.e., cases in which one group falls higher than the mean of the published norms and one falls lower. This occurs in four of the above six scales. Again ranked in order of the level of confidence they are Q2, C, A, and Q3. For the other two scales, both means and on the same side; in Scale F both fall above the mean distribution sten score, and in Scale G both fall below the mean sten score.

Examining each of these scales in turn, it may be seen that the personality factors of the groups differ greatest, according to the 16 PF questionnaire, in

1. Group dependency versus self-sufficiency (Scale Q2) with the deaf being more group dependent than the hearing (significant at the .001 level).

2. Affected by feelings versus emotionally stable (Scale C) with the deaf being more emotionally stable than the hearing (significant at the .01 level).

3. Reserved versus outdoing (Scale A), with the deaf being more outgoing than the hearing (significant at the .05 level).

4. Undisciplined self-conflict versus controlled {socially precise) (Scale Q3), with the deaf being more socially precise than the hearing (significant at the 0.05 level).

On the two scales where both means fall on the same side of the distribution but still differ significantly, it was found that in factor

5. Sober versus happy-go-lucky (Scale F), the deaf are more happy-go-lucky than the hearing (at the .02 level), although both means are above the mean of the distribution norm.

6. Expedient (evades rules) versus conscientious (rule-bound) (Scale G), the deaf are more conscientious and rule-bound than the hearing (at the .05 level), although both means are below the norm mean.

Examining now the means for the scales in which both groups have high scores relative to the norm means, it can be noted that both scored extremely high on Scale Q1 (experimenting, liberal, analytic, free-thinking) with the hearing having a mean sten score of 9.5 and the deaf a mean sten score of 8.9, and both again scored high on Scale B (more intelligent, abstract-thinking, bright), with hearing and deaf mean sten scores of 8.8 and 8.2 respectively. As this is a group of college subjects, these high scores might easily be anticipated. No extremely low scores were found for both groups, when compared to the norms.

C. Crowne-Marlowe Scale of Social Desirability

The results from the conformity measure of the Crowne-Marlowe are shown in Table 5. The mean for the deaf subjects was 16.50 while the mean of the hearing students is 21.95, the difference of 5.45 being significant beyond the .001 level in favor of a higher number of socially conforming responses by the deaf. These results are consistent with the 16 PF Questionnaire Scale Q2~~ which also showed the deaf being more group-dependent than the hearing at the .001 level.

(INSERT TABLE 5 ABOUT HERE)

D. Machiavellianism Forms IV and V

Form V, the forced choice version of the scale, shows (Table 5) the hearing to be more Machiavellian than the deaf at the .001 level, with a mean score of 87.24 for the hearing and a mean of 77.75 for the deaf, Form IV of the Machiavellianism scale, a Liker-type scale, shows a strong tendency toward the hearing to record as more Machiavellian than the deaf, with a mean score of 58.86 for the hearing and 53.50 for the deaf, a difference significant at the .06 level. These results are consistent with the 16 PF Questionnaire Scale G. which also shows the hearing to be more expedient (disregarding rules) than the deaf.

DISCUSSION

As can be seen from the ACL data, there does seem to exist definite beliefs about the personality characteristics of the deaf, which are held both by the hearing and by the deaf students themselves. The stereotype that emerges are that the deaf are argumentative, highly emotional and immature. All these adjectives, as can be seen from examining the clusterings of other adjectives similar in nature (Table

2), are negatively loaded. Of the thirty adjectives which received the greatest frequency of checks, only three can be considered to be positive ones, and of these three two were in the lowest frequency of the top 15 of the deaf, and the other was in the lowest frequency of the top 15 of the hearing. Hypothesis 1, that a stereotype of the personality characteristics of the deaf student has been formed on the RIT campus, is therefore strongly supported.

The stereotype that emerges is not a flattering one. The picture of the deaf that emerges is that of "naughty children"; they are obnoxious, argumentative, moody, careless, immatureJ and so on, although not really vicious or mean. If one were to picture mischievous children, it is in just such terms that they might be described.

A question might be raised as to whether the ACL might give poor results for the deaf based upon the fact that manv of the adjectival meanings might be unclear for those of lowliteracy level. There are three reasons why this was rejected as an obstacle in the analysis of the present research:

(a) The deaf did choose different adjectives to describe the deaf and the hearing, showing that positive as well as neqative adjectives existed in the list phenomenologically for the deaf.

(b) The sheer number of the negative adjectives chosen by the deaf for the deaf indicates that even if several had been misunderstood it would not have substantively changed the analysis of the results.

(c) It is much more likely that a word whose meaning was unknown would be omitted rather than included; for this reason no analysis was undertaken of those adjectives with a Dow (or zero) frequency, only of those with a high frequency.

The stereotype that the deaf have of the hearing is almost a mirror image of their self-stereotype. The hearing student, in the eyes of the deaf, is intelligent, kind, and mature; one could call this the "kindly parent" image to the "naughty child" self-perception, and there is almost a wistfulness to this deaf-created contrast.

As for the hearing targeted on the hearing, no definite clusterings emerged. This result might be anticipated, however, when it is realized that for a stereotype to form, a group must be perceived as a reference group that is salient for the individual. It is obvious that

most people do not consider themselves as belonging to a "hearing group" any more than they consider themselves as belonging to a "seeing group", a "twoarmed group", or a "talking group", since almost all those with whom they come in contact belong in these categories. There is hence no necessity or opportunity to have this form as a major split in their attitudinal structure. When asked to categorize the attributes of "hearing people", then, the hearing student is more likely to respond in terms of his direct personal experience than in terms of any shared view of a set of group characteristics.

The negative rating of the deaf targeted on themselves might at first appear slightly puzzling. As Harding, Proshansky, Kutner and Chein (1970) state, "... Socially desirable characteristics are more likely to be emphasized in a group's description of itself, while undesirable characteristics are more likely to be stressed in descriptions of the group by members of another group ..." (p. 8). This is not the case here, though, where the deaf invert this and attribute the positive characteristics to the hearing, and the negative to themselves. In the next sentence of the above quote, however, the authors state "Sometimes the low status of a group in a particular society is so firmly established that even the traits used by group members to characterize themselves are predominantly unfavorable" (p. 8).

Hypothesis 2 states that this stereotype will show some correspondence with objective measures of the personality structure of the deaf. The personality structure disclosed by the 16 PF for the deaf, however, show them to be in general emotionally stable, friendly, socially conforming individuals.

Contrasting this with the stereotype of emotional (moody, worrying, defensive), immature (self-centered, careless), and arqumentative-aggressive (headstrong, demanding, impatient) characteristics which are imputed to them, there does not seem to be even a shell of a "kernel of truth" about both group's perceptions of the characteristics of the "typical" deaf student. Scale E of the 16 PF Questionnaire, which directly measures assertive, aggressive, stubborn, competitive versus humble, mild, accommodating, and conforming yielded no significant difference between the two groups, with almost identical means and standard deviations in each (Table 3). Based on the objective personality measure, then we must strongly reject Hypothesis 2, and state that there does not appear to be any correspondence between the objective measure and the perceived personality characteristics of the group.

Hypothesis 3 states that the deaf are more conformist than the hearing. This hypothesis appears to be strongly supported. The deaf mean was significantly higher at the .001 level than the hearing mean of the Crowne-Marlowe scale, indicating that they did indeed respond more in line with what is perceived as socially approved statements than did the hearing. This finding is supported by the results of Scale Q2 of the 16 PF where a difference also appeared at the .001 level indicating that the deaf were more group-dependent than the hearing, and in Scale Q3 where the deaf were significantly hither (at the .05 level) than the hearing in controlled, socially precise responses as opposed to ones which would indicate that they follow their own urges and are careless of protocol. That the deaf are more group-dependent and socially controlled can probably be traced to the fact that they have to be more group concerned, since it is only within their own group that they can communicate easily and probably feel comfortable. The sanctions possible to the group when behavioral norms are violated are much stronger when the individual is a forced member of the group than when he has many other alternatives, and consequently fear of falling victim to these sanctions must be much more salient for the disabled in general than for those where group-membership is voluntary.

Hypothesis 4, that the deaf are in general more Machiavellian than the hearing, must also be rejected. The results from the Mach V (at the .001 level) and those from Mach IV Scales (at the .06 level) both demonstrate that the deaf are significantly less Machiavellian than the hearing. This agrees with Scale G of the 16 PF, where the results show the deaf as less expedient, disregards rules less, more conscientious, and more moralistic than the hearing (at the .05 level). What then might account for what appears to be a quite prevalent feeling among the hearing that the deaf are very manipulative? For example, several hearing faculty have stated that they felt the deaf had used their disability to manipulate them into awarding higher grades than they were entitled to on the basis of their performance.

Admittedly speculative, a possible sequence might be as follows: a hearing faculty member, faced with a deaf student doing poorly in his class, would feel sympathetic toward the student who is obviously laboring under a very disabling handicap. He might therefore assign him a higher grade than he should or devote more time to the student than to other students. Dissonance would arise between his selfperception as a "fair" grader and his actual behavior of giving a higher grade than the student is entitled to. One method of dissonance

reduction is to alter the "perceived freedom of choice" that one has available in a situation (Brehm and Cohen, 1962). Changing one's perception of why a higher grade had been assigned from that of "sympathy" to that of "I was subtly imposed on by the student" would therefore lessen this dissonance, and cast the reason for the "unfair" action on the student or the disabled in general rather than on the faculty member himself.

Several questions for further research emerge from the data collected herein:

1. When does the stereotype of the deaf form for the hearing? Is it already possessed by incoming freshmen, or is it formed during contact with NTID students? Is it strongest during the "cultural shock" of first encountering large numbers of "different" people with odd methods of speaking and communicating, and does it then dissipate as the subject grows accustomed to the deaf, or does it grow firmer with each additional contact?

2. When does the stereotype form for the deaf, and why? A selfimage of oneself or of ones reference-group as negative is, as was previously pointed out, generally found only when the group is very firmly established as a low-status one. Does the deaf student already come in with this negative self-image or does he develop it during contact with hearing students. Is it an example of what Bruno Bettleheim calls the "identification with the oppressor"? And if so, who then is the oppressor in the eyes of the deaf: the entire hearing world, the hearing counselors and administrators he must work with, the hearing students or faculty, or is it his previous teachers or even his parents (if they are hearing)?

3. What can be done to counteract the erroneous stereotype of the deaf held by the hearing? Will information or an emotional appeal best change the image, or will enforced contact, voluntary contact, or some combination of these?

4. How can the deaf student's self-image be enhanced? Lectures, role-modeling based upon contact with happy, successful deaf adults, encounter groups with an experienced leader, all might contribute to changing the negative self-image to a positive one more in accord with the actual personality characteristics.

5. Is there any way in which the deaf students can be trained to be less group-dependent and more self-reliant? Should less be done

for the deaf by their counselors at NTID and more load thrown on their own shoulders? Perhaps arranging situations so that the deaf student is forced to assume more self-responsibility, even at the expense of greater difficulties, might prove most beneficial to the student in later life.

It is hoped that efforts to answer some of these questions will be made in the future, so that the interaction of the deaf and the hearing populations might occur with greater ease, and as much as possible bring about the comfortable integration of the deaf student into the hearing community.

SUMMARY

Hypothesis 1, that a stereotype of the deaf student on the RIT campus has been formed, was strongly supported. The common stereotype that emerged from both the deaf and the hearing students was that the deaf student was aggressiveargumentative, emotional and immature. The deaf (but not the hearing) hold a stereotype that the hearing are intelligent, kind, and mature. The hearing have no set pattern of beliefs about the hearing.

Hypothesis 2, that this stereotype would show some correspondence with objective measures of the personality structure of the deaf, was not supported. The deaf in comparison with the hearing on the 16 PE Personality Questionnaire, scored equally in aggressivenessargumentativeness, were more emotionally stable, and followed their self-impulses Tess than the hearing. This was directly contradictory to the stereotype held by both groups.

Hypothesis 3, that the deaf are more conforming than the hearing, was strongly supported. Results on the Crowne-Marlowe supported the findings on the 16 P.F. Personality Questionnaire that the deaf are more conformist, and more concerned about presenting opinions which correspond to those considered socially desirable.

Hypothesis 4, that the deaf are more Machiavellian and manipulative than the hearing, was not supported. On both of the Christie-Geis Machiavellian Scales (Form IV and V the hearing were significantly more Machiavellian than the deaf. This was again supported by the results from the 16 P.F. Personality Questionnaire.

5. An effort to formulate reasons for the discrepancy between perceived personality characteristics of the deaf and those

characteristics revealed by the questionnaires was made, and suggestions for further direction of research in this area were presented.

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